



Psychoeducation and Family Intervention by Parents of Children with Attention Deficit Hyperactive Disorder: A Comprehensive Review

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ABSTRACT

Attention Deficiency Hyperactive Disorder (ADHD) is a neurodevelopmental disorder that encompasses attention deficit and/or hyperactivity-impulsive issues. Parents, teachers, and caregivers are responsible for identifying children with ADHD by observing their social and emotional behaviour, examining their retention ability, and identifying their learning problems to provide the necessary remediation. This comprehensive review of over 54 articles examining the effectiveness of psychoeducation and suitable home-based therapy for children with ADHD was published between 1987 and 2022. It analysed concrete strategies parents can apply in delivering constructive teaching and training techniques for their children with ADHD in the home setting. Findings showed that the parental role is crucial in helping children with ADHD to self-regulate, reducing symptoms and potential comorbidities of ADHD, overcoming learning disabilities and improving the parent-children relationship via psychoeducation and family intervention.

Keywords: ADHD, parental role, psychoeducation, behaviour management, family intervention

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1 INTRODUCTION

Attention Deficiency Hyperactive Disorder (ADHD), identified more than 100 years ago, constitutes a chronic neuro-biological condition disorder of self-control (Barkley, 1997). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), individuals with ADHD may be diagnosed as having developmentally inappropriate attention skills, impulsivity and/or hyperactivity symptoms simultaneously with different levels of symptom severity (American Psychiatric Association, 2017; Tannock, 2013). Ava (2014) states that the estimated prevalence rate of ADHD in Malaysia is 3.9%. However, more recent estimates of ADHD are unavailable, although the statistics show that 34.8% of 453,258 persons with learning disabilities were registered under Person with Disabilities(PWD) in 2017 (Social Statistics Bulletin Malaysia, 2018).

ADHD is one of the most diagnosed childhood psychiatric disorders, usually identified early, starting from the preschool year. The most common diagnostic methods used on preschool children are rating scales and interviews conducted by professional psychiatrists, child psychologists, or certified specialists with teachers, parents, and children as respondents (Stein et al., 2015).

From a mental health perspective, ADHD is regarded as a condition with a neurological basis due to an imbalance in the brain's neurotransmitter chemicals, non-adrenaline and dopamine (Green & Chee, 1997). There are three subtypes of ADHD, the Predominantly Inattentive Type (ADHD-I) includes individuals with six or more symptoms of inattention and fewer than six symptoms of hyperactivity-impulsivity; the Predominantly Hyperactive-Impulsive Type (ADHD-H) includes individuals with six or more symptoms of hyperactivity-impulsivity and fewer than six symptoms of inattention, and the Combined Type (ADHD-C) is defined by six or more symptoms on both dimensions (Willcutt et al., 2012). Inattention symptoms are reflected in difficulty in paying or sustaining attention, overlooking details, being easily distracted without any obvious distractions, and being forgetful. In contrast, hyperactivity and impulsive symptoms are shown through fidgeting behaviour, restlessness, inability to engage in leisure activities quietly, talking excessively, difficulty waiting in turn, acting as if "driven by motor", and sensitivity to those around them (Colomer et al., 2017). Children with ADHD suffer profound impacts such as inattention, hyperactivity behaviour, disobedience, poor academic performances, low self-esteem, and lack of social skills (Harpin, 2005). Neglecting the symptoms of ADHD might affect the lives of the individual, their family, community, and people around them (Faraone et al., 2001; Johnston & Mash, 2001). There is also a potential for exhibiting comorbidity conditions as their age increases, such as bipolar disorder, anxiety, dyslexia, reading disabilities, eczema, and sleep disorder (Germanò et al., 2010; Schmitt et al., 2010; Skirrow et al., 2012; Tannock, 2009; Wüstner et al., 2019). Thus, teachers, parents, and society play a role in helping individuals with ADHD cope with their conditions (Arnold et al., 2020; Guo et al., 2021; National Collaborating Centre for Mental, 2009).

Despite the extensive resources related to ADHD, training children with ADHD is still underrated and unpopular among parents. Parents are not provided with proper education and training, which affects their ability to effectively manage and train their children with ADHD (de Oliveira & Dias, 2018). Generally, when parents lack the necessary awareness and resources, they prefer sending

their children to therapists, counsellors, and/or special needs educational centres; thus solely depending on the experts to provide intervention to their children (Rafique Ansari, 2016). However, according to Wilkes-Gillan et al. (2014), parent-delivered intervention proved more feasible and effective in improving social skills than therapist-led clinical-based play sessions. Parental awareness and accurate knowledge are essential for planning and implementing effective strategies to help children flourish despite their condition (Montes & Montes, 2021). In low socioeconomic countries, limited education, and access to knowledge on ADHD are major problems, which has become a setback for educating parents on ADHD (Choi et al., 2017).

This comprehensive literature review aims to summarise the literature on strategies for helping parents understand their children with ADHD and providing a broader knowledge of training children with ADHD. Given that early childhood (i.e. age 3 to 6) is a crucial timeframe for overall development and will affect the child's late childhood/adolescence (Tanu, 2019; Fernandez, 2014; Mishra et al., 2020), this review will focus on parents as their child's first teachers and parenting approaches for children with ADHD from early childhood to late childhood. This review aimed to examine:

1. The effectiveness of psychoeducation as part of the intervention program.
2. The suitable family intervention programmes to be conducted at home.

2 METHOD

This comprehensive literature review uses the hybrid search strategy, which utilises both database search and snowballing methods to extract relevant articles (Wohlin, 2014; Wohlin et al., 2022). The articles were found using search engines such as Mendeley, Emerald Journal, Sage Publication, Google Scholar, books.google.com.my, UNIMAS Library App e-collection (PeTARY), based on the following keywords: "ADHD," "family intervention," "parental role," "psychoeducation," and "behavioural management". Relevant articles published between 1987 to 2022 were chosen for the review. Fifty-four articles were then categorised and organised into two comprehensive tables (Table 1 and Table 2). Table 1 (Psychoeducation as part of an intervention programme for helping children with ADHD) was divided into two subtopics. The first subtopic is psychoeducation for parents and teachers. The second subtopic focuses on the effectiveness of psychoeducation programmes. Table 2 (Family intervention for children with ADHD) was divided into three categories, namely the three types of intervention programmes: Applied Behaviour Analysis [ABA], Relationship Development Intervention [RDI], and game-based therapy.

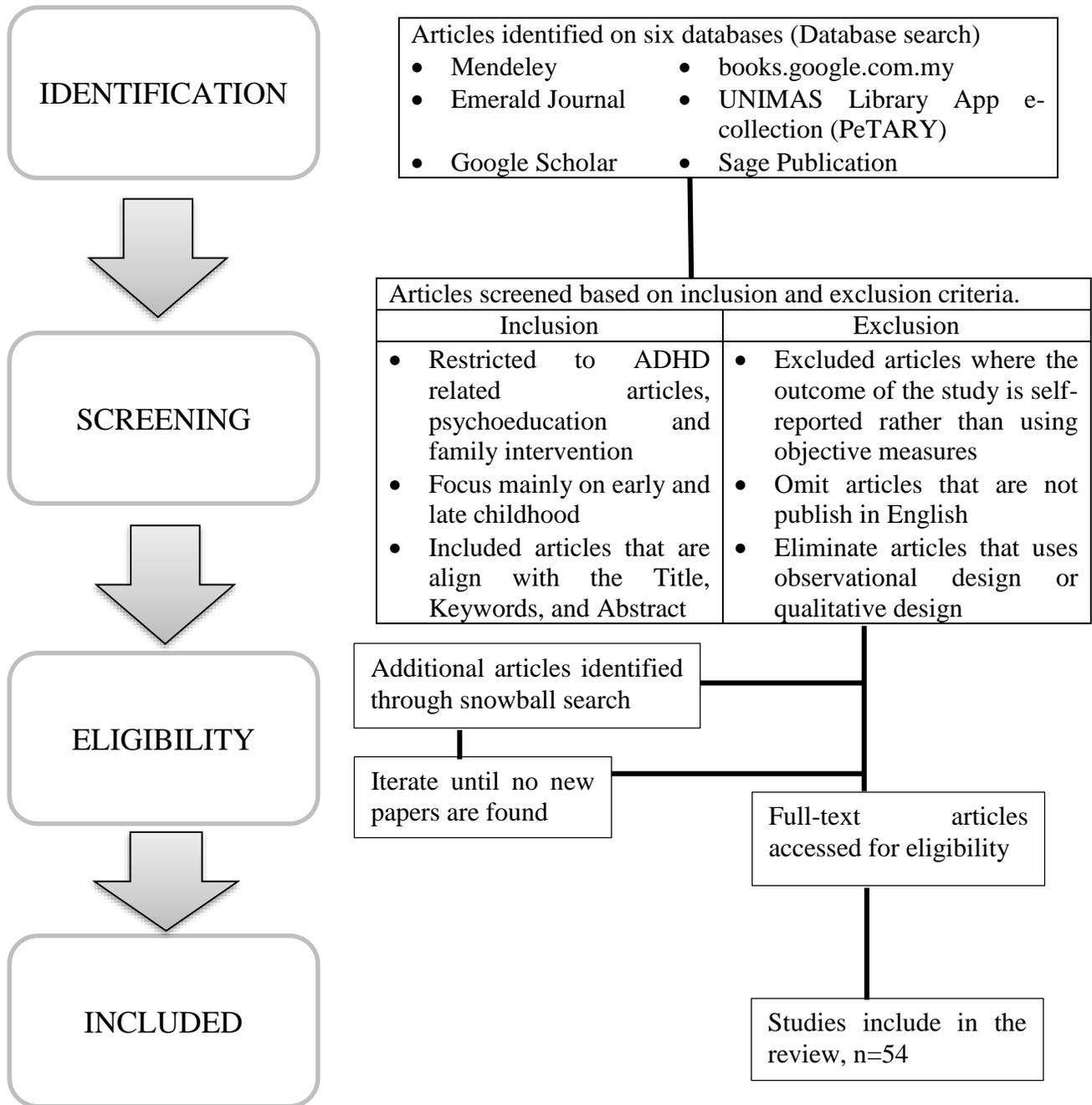


Figure 1. Research method flowchart.

Table 1. Psychoeducation as part of an intervention programme for helping children with ADHD.

Topic	Article	Age Group	Focus Group	Mental Disability	Key Findings
Psychoeducation for parents and teachers	Bai et al. (2015)	6-12	Children Family	ADHD	Psychoeducation is effective in enhancing adherence to pharmacological treatment and improving clinical symptoms.
	Baweja et al. (2020)	General	Family		Tele-PHPs as an alternative for delivering psychoeducation in the home environment.
	Colom (2011)	General	Patients Family	Bipolar disorder Depression All mood disorder	The effectiveness and efficiency of psychoeducation in preventing the recurrence of affective disorders (mood disorders).
	Cruz et al. (2009)	0-18	Parents Patients	ADHD	Psychoeducational programmes assist children and adolescents with ADHD by offering parental counsel, treatment information, and parent support and improving communication among parents, teachers, and the health team.
	Ferrin et al. (2020)	5-18	Children/ adolescence	ADHD	The effectiveness of psychoeducation in reducing symptoms by comparing to usual treatment.
	Kusuma Wijayanti & Cahyadi (2019)	6 (Male)	Children	ADHD	A significant drop in hyperactivity and improvement in completing his homework at school and at home.
	Lee (2022)	General	Children Parents	SLD	Psychoeducational strategies in home-based learning.
	Nussey et al. (2013)	5-12	Peers Parents Teachers	ADHD Tourette syndrome	22 studies examining the impact of providing educational information on parents, teachers, and peers
	Pfiffner et al. (2014)	7-11	Children Parents Teacher	ADHD	Exposure to psychosocial intervention and behavioural management is practical when parents, children, and teachers engage in psychoeducation together rather than individually.
	Sravanti et al. (2020)	Children	Family Children	ADHD	Family member psychoeducation improves parental comprehension of the disease and reduces punitive behaviours toward the kid. Focus on environmental-based settings.

Effectiveness of psychoeducation programme	Zwi et al. (2011)	5-18	Parents Children	ADHD	Role of psychoeducation in improving behaviour, reducing parental stress and improving school performance.
	Aduen et al. (2018)	8-12	Children	ADHD	Social difficulties in ADHD are caused by inconsistent performance rather than a lack of social knowledge/skills.
	Alvidrez et al. (2010).	General			Incorporating consumers is a viable technique for developing psychoeducational materials to reduce misconceptions.
	Dahl et al. (2020)	5-17	Children Clinicians Parents Teachers	ADHD	The benefits of psychoeducation as an intervention resulted in a reduction in ADHD symptoms and behavioural issues.
	Hantson et al. (2012)	6-12	Children Parents	ADHD	The therapeutic day camp, psychoeducation and training programme improve behaviour, peer relationships, and general functioning in children with ADHD.
	Johnson (2018)	5-18	Children/adolescents Parents Clinicians	ADHD ODD Conduct Disorder ASD Tourette syndrome Learning difficulties	Collaborative and Proactive Solutions (CPS) are effective in reducing behavioural problems through the concept of collaboration.
	Lantz et al. (2021)	6-12	Children	ADHD	Psychoeducation has gained positive responses and overall satisfaction in providing knowledge and understanding for children with ADHD.
	Mueller et al. (2012)	General	Children	ADHD	The stigma associated with ADHD can contribute to risk factors affecting treatment adherence, treatment efficacy, symptom aggravation, life satisfaction, and the mental well-being of individuals with ADHD.
Powell et al. (2021)	Under 18	Children	ADHD	Psychoeducation approach to improving social skills.	

Table 2. Types of family intervention programmes.

Types	Article	Age Group	Target Group	Mental Disability	Key Findings
Applied Behaviour Analysis (ABA)	Alberto & Troutman (2012)	General	Children Parents Teacher	ADHD	Practical handbook with guidelines for using ABA in the behavioural development of children with ADHD.
	Baer et al. (1987)	General	Family	Behavioural management problems	The early version of ABA proposed seven dimensions in applying behavioural principles to improve children's behavioural problems.
	Demchak et al. (2020)	General	Family Educators	ASD Cognitive and communication delays ADHD	The goal of ABA is to support intervention that can reduce problematic behaviours through education strategies. ABA study about human behaviours.
	Grindle et al. (2009)	Children	Parents Children	ASD	Early Intensive Behavioural Intervention (EIBI) applies ABA theory in therapy.
	Leaf et al. (2017)	Children	Children Parents Therapist	ASD	Developing effective skill repertoire, regulating problematic behaviour by integration into mainstream schools, and neutralising levels of functioning.
	Marino et al. (2020)	30 months-10 years old	Children Families	ASD	Tele-assisted intervention improve parents' perception and control of children's conduct and reduces stress levels.
	Rad et al. (2019)	2-5	Children	ASD ADHD	Improvement in Autism Diagnostic Observation Schedule and ADHD Rating Scale.
	Mautone et al. (2011)	Children	Parents Children	ADHD	Psychosocial interventions for ADHD target behaviour change in one environment at a time.
	Roane & Betz (2012)	Children	Children Therapist	ASD	ABA handbook on the role and intervention suitable for children with behavioural management issues.
	Slattery et al. (2016)	6-14	Children	ADHD	Self-management intervention to improve on-task behaviour in children with ADHD.
Relationship Development	Baumrind (1991)	General	Parents Children		Parenting styles can trigger a child's behaviour.

Intervention (RDI)	McNeil et al. (2014)	2-7	Children Parents	Depressive disorder Separation anxiety disorder Autism Mental retardation Trauma	Parent-Child Interaction Therapy (PCIT) is an experimentally validated parent training programme that uses data to guide therapy. There are two phases in the intervention, child-directed and parent-directed intervention. Therapists utilise the information to determine which parenting skills should be used in each session.
	Gutstein et al. (2007)	20 months-8 years old	Children Parents	ASD Language disorder ADHD Bipolar	Children who participated in RDI engaged more socially, reciprocal communication, functioned in school settings with less adult interaction, and were more flexible and adaptive.
	Hosogane et al. (2018)	2 (female) 4 (male)	Children Parents	ADHD	PCIT psychotherapy treatment has been proven effective for children with disruptive behaviours.
	Manjarrés-Carrizalez & Hederich-Martínez (2020)	Children	Children Parents	Children with disabilities	Model of Parenting Styles in Disabilities (MEPD) proposed four parenting styles: driving-reflexive, dominating-inflexible, dominated-complacent, and dominated-distant style.
	Moghaddam et al. (2013)	7-12	Children Parents	ADHD	Gender and parental education factors impact parenting strategies.
	Van Steijn et al. (2013)	2-20	Children Parents	ASD ADHD	Paternal ADHD symptoms negatively influence parenting styles causing greater permissiveness toward unaffected children.
	Veenman et al. (2018)	6-13	Children Family Teacher	ADHD	Efficacy of a low-intensive behavioural teacher programme for children with ADHD symptoms
Play Therapy	Alrazain (2016)	6-12	Children	ADHD	Art therapy reduces hyperactivity/impulsiveness and inattention and improves the relationship and emotional well-being.
	Barzegary & Zamini (2011)	4-12	Children	ADHD	The positive effect of using play therapy in a covariance analysis between the control and experimental group.

	Dougherty & Ray (2007)	3-8	Children	ADHD	The effect of child-centred play on children's cognitive development at different stages.
	Green & Bavelier (2012)	General	General		Gameplay improves selective attention, increases learning capacity, and can be applied as an educational device.
	Jafari et al. (2011)	6	Preschool children	ODD ADHD	Cognitive-behavioural play therapy reduces emotional and behavioural problems.
	Lapsley (2018)	General	General		Piaget's human developmental stages and suitable play therapy.
	Moore & Stapel-Wax (2011)	Children	Children Community Parents	Mental disabilities Traumatisation	The importance of play therapy for children who suffer traumatisation and have mental disabilities. Family guidebook.
	Naderi et al. (2010)	8-12	Children	ADHD Anxiety Social maturity	The results show that play therapy, as an effective therapeutic approach, is a viable intervention for children suffering from various issues such as ADHD and anxiety.
	Nigussie (2011)	Children	Children Therapist		Play therapy enhanced the participants' communication skills, academic performance, focus level, self-confidence, and self-esteem.
	Wallace (2018)	6-9	Children Parents	ADHD	Pretend play as an interaction-building tool between parents and children.
Digital Play	Kollins et al. (2020)	8-12	Children	ADHD	Digital intervention (games) can reduce the severity of ADHD by improving attentional performances.
	Lee et al. (2015)	Children	Children	ADHD	Brain-Computer Interface technology is used to address inattention and cognition of the brain.
	Kokol et al. (2019)	9-10	Children	ADHD ASD DCD DAIA	Digital interactive games have promising outcomes regarding anxiety reduction, stress control, emotion identification, and rehabilitation.
	Vinod & Thomas (2018)	General	General		BCI games operate based on a neurofeedback approach; this motivates and trains players to manipulate their brain functions toward self-regulation.

Interactive Play	Coma-Rosellé et al. (2020)	3-14	Children		Using the theory of Planning, Attention-Arousal, Simultaneous, and Successive to enhance the design of games designed to boost focus and planning in children with ADHD.
	Drewes (2011)	Children	Children Families	ADHD	Basic concepts, goals, and techniques in integrating Play therapy.
	El-Nagger et al. (2017)	3-12	Children Parents Teacher	ADHD	Improve attention, lowering hyperactivity, and manage impulsive behaviour in children with ADHD.

3 ANALYSES

3.1 Psychoeducation as part of an intervention programme for helping children with ADHD

Psychoeducation is a therapeutic programme that focuses on delivering informative communication and coping skills to patients and their families (Bai et al., 2015). Psychoeducation educates parents to actively enrol in treatment to develop a positive attitude and provide exceptional treatment to children with ADHD (Nussey et al., 2013). Psychoeducation can provide practical parental training for children with ADHD (Cruz et al., 2009). Psychoeducational strategies such as implementing routines/structure, reduce distractions, utilize clocks/timers, break up lengthy task, provide extrinsic motivation, and incorporate physical activities can be practical in home-based learning (Lee, 2022). Moreover, studies have demonstrated that providing educational information on ADHD can correct misconceptions and increase individuals' knowledge of ADHD. Nowadays, psychoeducational knowledge can be accessed through telehealth, increasing parental involvement in a child's behaviour intervention programmes (Baweja et al., 2020).

The key players in making psychoeducation interventions successful are parents and caregivers. According to Ferrin et al. (2020), psychoeducation may operate by changing parents' perspectives regarding their children's problems. For example, the study by Colom (2011) revealed that psychoeducation effectively prevents relapse of ADHD symptoms and improves emotions. Furthermore, psychoeducation help reduces parents' stress levels and prepares them to be trainers, teachers, and educators, by presenting practical solutions for helping their children (Zwi et al., 2011).

Through psychoeducation programmes, teachers, therapists, trainers, and child psychologists can assist parents in providing the best psychosocial intervention and behavioural management techniques to train children with hyperactive-impulsive behaviour by concentrating on environmental manipulation (Pfiffner et al., 2014; Sravanti et al., 2020). One example is a psychosocial intervention that focuses on both parental and teacher roles. In psychosocial treatment, parents and teachers are equipped with the knowledge and skills; they act as trainers in behavioural therapy for children with ADHD. Psychosocial and behavioural treatment is a promising approach because it focuses on the main problem of ADHD instead of suppressing the symptoms; additionally, parents learn how to conduct the intervention on their children (Kusuma Wijayanti & Cahyadi, 2019).

3.1.1 Effectiveness of psychoeducation programmes

Psychoeducation is a primary intervention technique that targets parents and caregivers by creating awareness of the needs and knowledge of children with ADHD (Lantz et al., 2021). One of the many advantages of implementing psychoeducation is the reduction of stigmatisation. According to Mueller et al. (2012), the stigma associated with ADHD can lead to possible social and cognitive impairment, affecting treatment adherence and efficiency, symptom aggravation, life satisfaction,

and the mental well-being of individuals affected by ADHD. The same study also shows that patients can reduce self-stigmatisation through psychoeducation because psychoeducational interventions usually deliver accurate information regarding mental diseases and their treatment and send more positive messages regarding the treatability of mental health issues by clearing up misconceptions (Alvidrez et al., 2010).

The efficacy of a psychoeducational programme is demonstrated through reduced problematic behaviour. According to Johnson (2018), a joint partnership between therapists, caregivers, and children can significantly improve behavioural issues and reduce symptom severity. Dahl et al. (2020) reported that psychoeducation is effective in terms of clinical outcomes (reduction in symptoms of ADHD, behavioural issues, and the severity of the condition, overall symptom improvement, and treatment adherence) and subjective outcomes (ADHD awareness, quality of life, overall function, and parental stress) in children with ADHD.

The effectiveness of psychoeducation for individuals with ADHD depends on other comorbid mental disabilities, socio-demographic factors, the severity of ADHD, gender, and parental involvement. Psychoeducation helps children with ADHD gain socializing knowledge but does not improve social skills if the individual has inadequate exposure to society, making them less experience and having limited practice in socialising (Powell et al., 2021). Other studies have also reported that the social problems among children with ADHD are related to inconsistent social training and a lack of social knowledge (Aduen et al., 2018). Therefore, parents and children need to integrate social knowledge from the psychoeducation intervention sessions into real-world settings (Hantson et al., 2012)

3.2 Family intervention for children with ADHD

Various studies on psychoeducation demonstrate that children with ADHD who undergo behavioural therapy through family intervention (parent-led behavioural therapy programmes) experience significant positive effects. The behavioural therapy programmes that parents or caregivers can conduct are Applied Behaviour Analysis (ABA), Relationship Development Intervention (RDI) and play therapy.

3.2.1 Applied Behaviour Analysis (ABA)

ABA, which was first proposed by Baer et al. (1987), has seven critical dimensions (applied, behavioural, analytical, technological, based on conceptual systems, effective, and addressing generality of behaviour). ABA is a methodical technique for analysing behaviour using analytic behaviour principles by altering environmental events as independent variables and watching changes in behaviour as the dependent variable. ABA enables behavioural analysts to design individual intervention plans (Leaf et al., 2017; Roane & Betz, 2012).

ABA is commonly used on children with autism spectrum and children with ASD who also have symptoms of ADHD. Studies on the effectiveness of ABA have shown a reduction of behavioural symptoms for individuals with mental disabilities, behavioural management problems, learning

disabilities, and special needs after a 1-year training programme on utilising self-management and behaviour support plans. (Rad et al., 2019; Slattery et al., 2016).

According to Alberto and Troutman (2012) and Demchak et al. (2020), ABA focuses on teaching strategies and decreasing problematic behaviours using a diverse range of triggering techniques (e.g., simulations, gestures, verbal, spatial, and differing degrees of physical cues), by breaking complex behaviours into smaller components (i.e., task analysis), and encouraging desirable behaviours through the use of social praise, activity reinforcers (e.g., contingent access to activities such as watching television, sleep, and play), and tactile reinforcers (e.g., points, stickers, tokens). ABA-based tactics for reducing misbehaviour can be categorised into reinforcing new behaviours (e.g., raising one's hand instead of talking out), response penalty approaches (e.g., losing tokens based on behaviour), and the systematic utilisation of extinction to reduce undesirable behaviours (e.g., not giving candy to children who throw tantrums).

There are several challenges in running the ABA programme by therapists. Among the challenges faced is the need for therapists to frequently observe the children in their home environment, which is intrusive and invasive of privacy. Another challenge is the administrative responsibilities of parents to repeat and upgrade teaching materials based on children's needs. Other challenges are over-expectation about improving children's behaviour and the possible misconception about intervention strategies that might occur (Grindle et al., 2009; Marino et al., 2020). Therefore, it is crucial to develop and review the strategies that deliver more support to each family member involved in the home programmes through ongoing development and enhancement of early intensive behavioural interventions harmonising with the children's environment (Mautone et al., 2011).

3.2.2 Relationship Development Intervention (RDI)

RDI is a parent-centred, cognitive-developmental strategy in which primary caregivers are taught to deliver ongoing opportunities for optimal functioning progressively in challenging dynamic systems (Gutstein et al., 2007).

Parenting styles affect relationship development deeply. Based on the analysis of the effectiveness of parenting styles for children with ADHD by Baumrind (1991) and Moghaddam et al. (2013), parents of children with ADHD have less permissive but more authoritarian parenting methods. As a result, this parenting style can exacerbate ADHD symptoms. A recent study on parenting styles among parents of children with disabilities can be explained using the Model of Parenting styles in Disabilities (MEPD), which comprised dominating-inflexible, driving-reflexive, dominated-distant style, and dominated-complacent types of parenting (Manjarrés-Carrizalez & Hederich-Martínez, 2020). Parenting styles and changes can be reflected in positive and negative outcomes. Positive transformation improves the capability of children with disabilities. Conversely, negative changes can be identified through the loss of ability to relate and feeling of dispassion towards the child, causing the child to experience worsening symptoms.

Implementing suitable parenting styles since childhood can be effective in helping children with ADHD control their behaviours and build socio-emotional relationships, particularly with their parents (Van Steijn et al., 2013). Avoiding permissive and authoritarian parenting styles can help children with ADHD cultivate a better relationship with parents or caregivers. Thus, education on parenting is vital for helping children with ADHD develop and gain stability, especially in helping them cope with their behavioural problems.

Parents-Children Interaction Therapy (PCIT), which is also part of the RDI programme, allow parents to be directly coached by a therapist on parenting skills including the use of data to facilitate treatment, and measurement on family development. At the start of each session, the therapist presents a brief questionnaire and conduct behavioural observations. The PCIT programme focuses on both children-directed and parent-directed interventions (Hosogane et al., 2018; McNeil et al., 2014). Besides parenting styles, factors such as gender, age, parental education level, severity and potential comorbidity of ADHD, and social functioning should be considered before implementing an intervention programme for children with ADHD (Veenman et al., 2018).

3.2.3 Play Therapy

Play therapy refers to using games as a therapeutic intervention to help train children with ADHD (Naderi et al., 2010). According to Barzegary and Zamini (2011), play therapy is beneficial for increasing attention, reducing impulsiveness, and expending energy, contributing toward more self-regulation. As Green and Bavelier (2012) mentioned, the real benefit of game playing may strengthen the capacity to learn, rather than providing an instantaneous advantage on new activities (improved performance from the very first session) because children with ADHD often lack focus and are hyperactive, game-based therapy can help spark interest and train children with ADHD simultaneously.

Play therapy can reduce and significantly lower children's oppositional defiant disorder and improve attention and focus, sensory, social skills and interactive behaviour, academic outcomes, assertiveness, self-confidence, and self-esteem. Therefore, play therapy is a potent counselling approach with a high self-healing efficacy and can improve the relationship between parents and children with ADHD (Jafari et al., 2011; Nigussie, 2011). Play therapy strategies incorporate play materials as an intervention for children with ADHD while ensuring that it is fun, affordable, and accessible. Examples of play approaches are painting and game-play, which are ideal for children with mental disabilities, PTSD, anxiety, and behavioural problems (Moore & Stapel-Wax, 2011).

According to Lapsley (2018), play intervention should accommodate the child's developmental stages (Piaget's developmental stage theory). According to Piaget's development stage theory, preschool children have divided into two stages of development: the sensorimotor phase (0-2 years old) and the preoperational phase (2-5 years old).

During preschool, the goals of play are to build relationships, communication skills, active engagement, sex-role identification, and affective lexicons such as feelings of happiness, sorrow,

rage, fear, and the ability to interpret the emotional experiences of others (Dougherty & Ray, 2007). Examples of play for the sensorimotor phase are simple puzzles (large pieces); plush toys are ideal for the sensorimotor phase. Building blocks made of wood or plastic with numbers and letters are also helpful for improving spatial abilities and item recognition. These blocks should be large enough to allow for simple grabbing and manipulation. Children entering the preoperational phase can engage in pretend play and sensory play. School-age children between 6 and 11 years old are considered to be in Piaget's "concrete operational phase" of cognitive development. A child's sense of "moral reciprocity"(fairness) is crucial during this stage. Pretend play may be used in play therapy with school-age children to stimulate the child's growing imagination and improve parent-child interaction (Wallace, 2018). Art therapy, including washable colour pens, markers, sculpting clay, and decoupage, allows kids to sketch or create sceneries with emotional significance (Alrazain, 2016).

3.2.3.1 Digital Play

Play therapy based on digital play uses digital technologies to facilitate learning and improve attention span while playing games (Kollins et al., 2020). According to Kokol et al. (2019), digital interactive games have promising outcomes regarding anxiety reduction, stress control, emotion identification, and rehabilitation. Brain-computer interface (BCI) based games are an example of a digital play where users play with a computer game that applies neurofeedback and cognitive training that directs the inattentive types of ADHD. It focuses on rehabilitating the focus and attention of children with ADHD, and the game innovation and intervention are built to be attractive to the game-playing nature of children (Lee et al., 2015; Vinod & Thomas, 2018).

3.2.3.2 Interactive Play

Interactive play therapy is a constructive play that focuses on the overall development of a child where children learn through experience, hands-on and physical engagement; it is applicable in a home-setting and can be guided by family, parents, and caregivers (Coma-Rosellé et al., 2020). Like therapists, parents need to be flexible and adaptive towards their children's needs in both treatment and thinking approaches when introducing child-play therapy to their children. Each child's needs and developmental levels are different. To know whether a play-based therapy will be effective, parents need to put it into action and always seek consultation and more knowledge from their child's therapist (Drewes, 2011). Interactive therapy allows children to express themselves naturally and is a strategy in which the child can develop in the most optimal conditions possible, especially when parents actively collaborate during the play session by observing and guiding their children during their playtime (El-Nagger et al., 2017).

4 CONCLUSION

Parents must be actively involved in training children with ADHD. Educating children with ADHD requires acceptance, attentiveness, patience, and knowledge. This comprehensive review examined the literature on parenting techniques when managing children with ADHD. The first step is to assist children with ADHD through psychoeducation. This comprehensive review

demonstrates the effectiveness of psychoeducation in reducing self-stigmatisation, problematic behaviour, and related symptoms.

Furthermore, psychoeducation helps children with ADHD regulate their emotions and attain positive achievement. Parents can apply family intervention such as Applied Behaviour Analysis, Relationship Development Intervention and play therapy techniques which show promising effectiveness in improving focus, self-regulation, learning abilities, social skills, parents-children relationship, reducing symptoms of ADHD and helping children to be in more control of their behaviour without depending on the medication. Family intervention is possible when there is involvement and support from parents.

The limitation of this study includes the unavailability of publications that focus specifically on parental roles in performing behavioural training for children with ADHD. Most publications were directed toward the teachers' and the therapists' roles in behavioural management. Interventions by teachers and/or therapists are different when parents also play a part in training children with ADHD in a home-based setting. Future work could explore the constellation of outcomes when both teachers and/or therapists and parents collaboratively engage in the behavioural management of children with ADHD. In addition, future research should be done on different upbringing environments of children with ADHD, such as their cultural background, social-economic status, and belief. Besides that, different factors such as parenting styles, the severity of ADHD symptoms (functional or non-functional disorder), and types of ADHD (inattentive and distractible type, impulsive/hyperactive type or combined type) should also be taken into consideration to enhance the knowledge in parenting children with ADHD fully. Finally, it is warranted that future studies should examine the interaction between parenting styles and the types of ADHD in ameliorating the behaviour of children with ADHD in intervention programs.

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